Quarterly Surveillance Report

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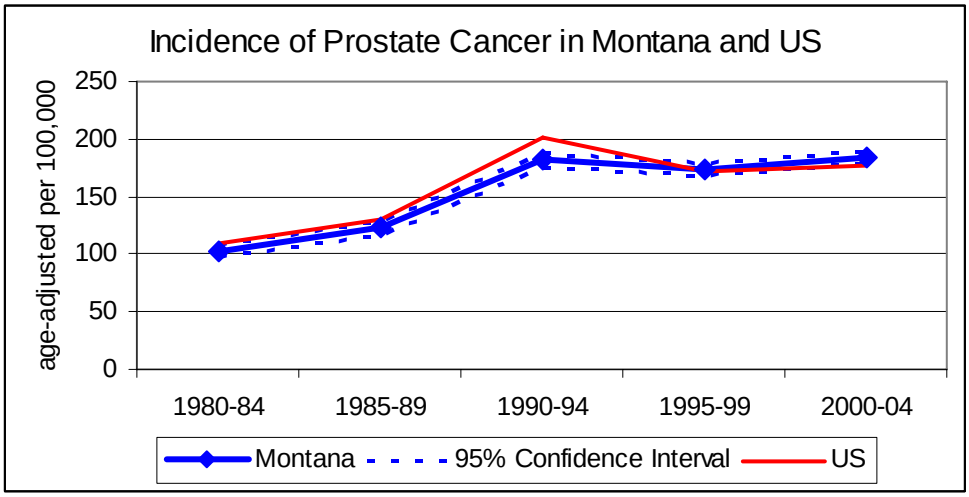
Prostate Cancer

Prostate cancer is common, nationally and in Montana.[1] It accounts for one third of all newly diagnosed cancers among men in Montana but for only 13% of cancer deaths. The Montana incidence rate has been similar to the US rate for the past 25 years. Incidence has increased, both nationally and in Montana, with a notable peak in the early 1990s. This has been attributed to an increase in detection following the introduction of the Prostate Specific Antigen (PSA) test in the late 1980s, rather than to a true increase in prostate cancer.[2]



Prostate cancer is problematic, in terms of both screening and treatment, because its natural history is unusual. Many tumors progress so slowly that they do not pose a threat to life (called clinically unimportant). Unfortunately, there is often no way to determine which prostate tumors will eventually become clinically significant (progress and become life-threatening) and which will remain clinically unimportant. Many men live symptom-free with prostate cancer for many years and ultimately die from other causes. This heterogeneity has implications for current recommendations about both screening and treatment for prostate cancer.[3,4]

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[1] "Cancer in Montana, 1999-2003." Annual Report of the Montana Central Tumor Registry, July 2005. http://www.cancer.mt.gov

[2] Potosky et al. 1995. *JAMA* 273:548-552; Jacobsen et a. 1995. *JAMA* 274:1445-1449.

[3] Agency for Heatlhcare Research and Quality. Systematic Evidence Review number 16: Screening for Prostate Cancer. Us Department of Health and Human Services, Rockville, MD, 2002. http://www.ahrq.gov

[4] Thompson et al. 2004. *NEJM* 350:2239-2246.

Prostate cancer does not meet the accepted criteria for population-based screening[5] for several reasons:

- There is no evidence that early detection and treatment of prostate cancer improve quality of life or survival relative to later detection.
- Current screening methods are not acceptably sensitive (able to detect disease when it exists) or specific (able to rule out disease when it does not exist).[6]
- Positive screening results must be followed up, incurring both substantial cost and risk of non-trivial side effects. Because of the high false-positive rate for screening, most men who undergo follow-up are found not to have prostate cancer.

The US Preventive Services Task Force (USPSTF) reviewed the evidence about screening for prostate cancer and concluded:

"…the evidence is insufficient to recommend for or against routine screening for prostate cancer using prostate specific antigen (PSA) or digital rectal examination (DRE)." [7]

The USPSTF cited recommendations of the American Academy of Family Physicians, the American Cancer Society, the American College of Physicians, the American Medial Association, the American Society of Internal Medicine, and the American Urologic Association, none of which endorse universal or population-based screening for any group of men.

The decision to screen for prostate cancer must be made by individual men in consultation with their health care providers. There is general consensus that

- Providers should discuss the potential benefits and possible risks of PSA screening with patients.
- Providers should consider patient preferences.
- Providers should individualize the decision to screen.
- The most appropriate candidates for screening are men older than 50, with a family history or other indications of increased risk of prostate cancer, and with a life expectancy of more than 10 years.

It might seem that using an imperfect screening tool is better than not screening but this is true only if screening incurs no harm, or incurs harm that is clearly less than that incurred by not screening. At this time, the evidence about prostate cancer screening shows that there is non-trivial risk of potential harm incurred by screening. In addition, no treatment

[5] AS Morrision. 1998. Screening. In *Modern Epidemiology*, 2nd Edition, KJ Rothman and S Greenland, eds. Lipincott Williams & Wilkins, Philadelphia, pp. 499-518.
[6] Thompson et al. 2004. *NEJM* 350:2239-2246.
[7] US Preventive Services Task Force. Screening for Prostate Cancer: Recommendations and Rational. Agengy for Healthcare Research an Quality, Rockville, MD. http://www.ahrq.gov/clinic/3rduspstf/prostatescr/prostater.htm

for prostate cancer is documented to prolong life and all treatments have a high risk of serious side effects.

The goal of screening is to reduce morbidity and mortality. It is not usually solely to detect disease, unless morbidity and mortality can be reduced by such detection. There are many conditions for which accurate screening methods are available, but for which effective treatments are not, depriving the screening tests of practical significance. We know that screening can detect prostate cancer at an early stage, but we do not yet know what impact this has on morbidity and mortality. Well-conducted studies to date have yielded inconsistent evidence. More studies are under way to determine the impact of prostate cancer screening and treatment on morbidity and mortality.

The primary screening tools for prostate cancer are digital rectal exam (DRE) and blood concentrations of prostate specific antigen (PSA). Both DRE and PSA are less sensitive and specific than desirable for screening tests. In particular, PSA is often elevated in benign prostate hyperplasia, a common condition in men as they age and not a risk factor for prostate cancer. PSA may also be elevated in cases of prostatitis, again not a risk factor for prostate cancer.

Between 10% and 25% of men screened, increasing with age, have a positive PSA test. Between 1% and 5% of men screened, also increasing with age, are ultimately found to have confirmed prostate cancer. This is a fairly high false positive rate. A high false positive rate is not, in itself, a reason to forego screening, provided the screening and follow-up procedures are relatively non-invasive and safe. Positive DRE and PSA screening results are followed by a transrectal needle biopsy, which is associated with varying degrees of pain and temporary interference with daily activities and occasionally with serious and persistent complications.

The most important reason for not recommending universal or population-based screening for prostate cancer with the methods currently available is that we cannot distinguish between prostate tumors that are likely to be clinically significant and life-threatening, and those that are likely to remain clinically unimportant. Some characteristics of tumors suggest that they may fall at one end of that spectrum or the other, but the majority of confirmed tumors are of unknown significance. Therefore, most men with a confirmed diagnosis of prostate cancer must make a decision about treatment without knowing ir their cancer needs to be treated or not.

There are several active treatment modalities, including radical prostatectomy, external radiation, implanted radiation, and hormone manipulation. In addition, there is conservative "watchful waiting." All active treatment modalities are associated with an appreciable risk of serious side effects, most commonly sexual dysfunction and urinary incontinence, which occur in between 15% and 70% of men treated.[8] It is important to

[8] Litwin et al. 2000. *J Urol* 164:1973-1977; Steineck et al. 2002. *NEJM* 347:790-796.

balance the risk of serious side effects from treatment against the fact that no form of treatment for prostate cancer has been definitively shown to improve survival.

A specific need for future research is the development of a reliable method to distinguish between prostate tumors that have a high probability of becoming clinically significant and those that have a high probability of remaining clinically unimportant. The current inability to distinguish between these types of tumors may be one reason why clinical trials of treatment modalities have not found significant increases in survivorship associated with either early detection or treatment.[9]

The National Cancer Institute provides patient information to help make decisions about screening and treatment of prostate cancer at

http://www.cancer.gov/cancertopics/factsheet/Detection/early-prostate

Please visit our website at www.cancer.mt.gov

For more information about the **Montana Cancer Control Program**, contact Ginny Furshong, Program Manager, 406-444-6888, gfurshong@mt.gov

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[9] http://www.cancer.gov/clinicaltrials/results/surgery-vs-watchful-waiting0902